

PATENT ABSTRACTS OF JAPAN

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(71)Applicant : HONDA MOTOR CO LTD

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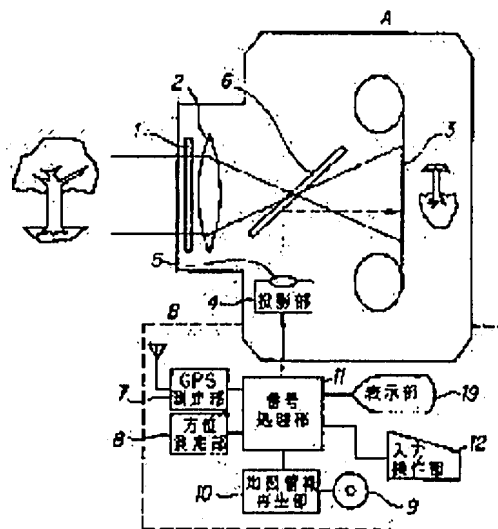
(72)Inventor : SHINOZUKA NORIYUKI

(54) PHOTOGRAPHING DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To easily control a picked-up video by assembling a means for measuring a position and a bearing in a photographing equipment and recording auxiliary information related to the photographing position and bearing on film simultaneously with photographing.

SOLUTION: When the map information reproducing part 10 of an auxiliary information generation part B selectively reads out the map information of a specified area from a map information storing medium 9, a signal processing part 11 reads out the map information of the specified area where the photographing position exists in accordance with the latitude-longitude values of the photographing position measured by a GPS measuring part 7, and the information on the latitude-longitude values and the information on the photographing bearing measured by a bearing measuring part 8 consisting of terrestrial magnetism sensor are given to a display part 4. Based on the auxiliary information, the projection part 4 of the body A of a camera projects a picture displaying the photographing position and bearing on a screen, and projects the picture on the film 3 through a lens 5 and a half mirror 6 so as to superpose and expose it on the picked-up video.



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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to photography equipment with the camera which records an image.

[0002]

[Description of the Prior Art] If it is in a photograph camera conventionally, a clock is built in, and he exposes the alphabetic character of the date or time of day in piles on a film in the case of photography, and is trying to record the date and time of day of photography on the corner of a photograph as auxiliary information at the time of photography.

[0003] Moreover, if it is in a video camera conventionally, a clock is built in, the text of the date or time of day is recorded on the free area or the exclusive field of a video signal in the case of photography, and it enables it to display the date and time of day of photography as auxiliary information at the time of photography if needed into a playback image.

[0004]

[Problem(s) to be Solved by the Invention] With photography equipments, such as the conventional photograph camera and a video camera, remain for recording the date and time of day as auxiliary information at the time of photography, and the information about a camera station is not acquired at all, but becomes later, and the trouble which it is going to solve is that the photography location in a travel place etc. is not clear anymore.

[0005] Therefore, in the former, in order to record the photography location, writing a photography location in a photograph afterwards, inserting the name of a place and the map of a photography location into a video image, or carrying out sound recording which it shows to a photography location etc. needs an activity separately, and the activity is complicated.

[0006]

[Means for Solving the Problem] This invention is in the photography equipment which records an image, and he is trying to offer a means to measure the camera station on a map, and a means to record the auxiliary information about the measured camera station to enable it to record the information about a camera station automatically on the occasion of photography.

[0007] Moreover, he is trying for this invention to offer a means to measure bearing of photography, and a means to record the measured bearing of photography to enable it to also record bearing of photography as auxiliary information at the time of photography.

[0008]

[Example] The body A of a camera which makes a film 3 expose the image which drawing 1 shows the example of a configuration when applying this invention to the photograph camera, and was taken in through the shutter 1 and the lens 2 It consists of the auxiliary information generating section B which generates the auxiliary information about the location and bearing of photography. The image which displays the location and bearing of photography in the projection section 4 prepared in the interior of the body A of a camera based on the auxiliary information generated from the auxiliary information

generating section B is copied out on the screen. He is trying to make the image which projected on the film 3 and was photoed through the lens 5 and the half mirror 6 expose the image in piles.

[0009] The GPS test section 7 for measuring a camera station as the auxiliary information generating section B, The bearing test section 8 which consists of an earth magnetism sensor for measuring bearing of photography, The map information storage medium 9 which consists of a CD-ROM the map information by digital map data is remembered to be, a memory card, etc., The map information playback section 10 which reads the map information on a predetermined area from the storage 9 selectively, While reading the map information on a predetermined area that the camera station exists, according to the lat/long value of the camera station measured by the GPS test section 7 and giving a display 4 While giving the information on bearing of the photography measured by the information and bearing test section 8 of a lat/long value of a camera station which were measured, respectively The signal-processing section 11 which consists of a microcomputer which controls this whole equipment, The location of directions of record of the auxiliary information about the location and bearing of photography, and its record, and setting out of magnitude, It is constituted by the input control unit 12 which can give the change of the recording mode to the signal-processing sections 11, such as various operator guidance for nothing and selection assignment of a display contraction scale of a map, and navigation.

[0010] Thus, if it is in some which were constituted, as shown, for example in drawing 2, as an image which displays the location and bearing of photography on a part of image photoed with the body A of a camera, a camera station is shown by the arrow head and the photograph with which the map of a predetermined area in which bearing of the photography at that time was shown by the magnetic-needle mark was recorded on the corner in piles comes to be acquired.

[0011] And about the magnitude and the location of a map which are recorded on a part of the photoed image, while a photography person checks except the finder of the body A of a camera before photography, it can be set as arbitration by making alter operation.

[0012] Moreover, instead of recording the map in which the camera station was shown by making a recording mode switch, as shown in drawing 3, the name of a place of a camera station can be recorded.

[0013] In this case, the information on the name of a place according to a lat/long value is also made to memorize in addition to map information, the information on the name of a place according to the lat/long value of the camera station measured under control of the signal-processing section 11 is read, and it is made to make the map information storage medium 9 exposed in piles on the image which had the alphabetic character image of the name of a place photoed.

[0014] In addition, the clock is made to build in the signal-processing section 11, the auxiliary information on the name of an era of photography, a date, a day of the week, and time of day is also given to the projection section 4, and the image with which a date, time of day, etc. were written in in addition to the name of a place and bearing of photography can be made to record.

[0015] Moreover, if the name of a place is recorded on the corner which becomes the outside of the area where the image of a film 3 is recorded instead of recording a map and the name of a place on the photoed image in piles as shown in drawing 4, it will become possible to enable it to burn the name of a place on the corner of sensitized paper at the time of a print.

[0016] Moreover, as shown in drawing 5, a special film with the truck by the MAG or the optical writing of dedication for recording the auxiliary information at the time of photography on the margin part of a film 3 is used. According to auxiliary information, a recording head (not shown) is driven suitably, and the location of photography and the information on bearing are recorded on the truck by the bar code BC etc. as service at the time of a print It is also possible to enable it to burn suitably the map with which the name of a place and a camera station were shown in the corner of the rear face of sensitized paper or a front face, and bearing of photography.

[0017] Drawing 6 shows the example of a configuration when applying this invention to the video camera. It consists of the image pick-up section 13, a control section 14, and the VTR section 15 as a body A of a camera. The configuration of the auxiliary information generating section B is completely

the same as the above-mentioned case.

[0018] Here, as a body A of a camera, as shown in drawing 7, in addition to primary-track T1 which records an image and voice It puts under control of a control section 14 using a video camera (for example, 8mm video camera) with the PCM truck T2 which can record auxiliary information in digital one. He is trying to record the auxiliary information about the location and bearing of photography which were obtained always or periodically on the occasion of photography on the PCM truck T2.

[0019] In using a video camera without the truck for auxiliary information record, it records auxiliary information on the bottom of control of a control section 14 at the free area of the scanning line.

[0020] Thus, if the **** information at the time of the photography is recorded on the free area of the PCM truck T2 or the scanning line on the occasion of photography, the auxiliary information can be recorded, without spoiling the information on the image currently recorded on the primary track T1, or voice in any way. And when reproducing later, the image photoed in a required location and required bearing based on the auxiliary information can be called selectively.

[0021] Moreover, by giving the command of super imposing to a control section 14 from the signal-processing section 11 according to the input directions from the input control unit 12 Based on the map information on a specific area that the auxiliary information and the camera station at the time of the photography given to the bottom of control of a control section 14 from the signal-processing section 11 exist, as shown in drawing 2 or drawing 8 Use the photoed image as a parent screen and the map of a predetermined area in which the location and bearing of the photography were shown is used as a child screen. Or as it becomes the screen of the relation of the reverse, it becomes possible to make it also make the so-called super imposing (picture in picture) which inserts a child screen into a parent screen perform.

[0022] In addition, the degree of freedom of photography and edit later can be enlarged now by enabling it to choose whether it records with this super imposing screen, or only the photoed image is recorded in this case.

[0023] Drawing 9 shows the example of a configuration when applying this invention to the electronic "still" camera. It consists of the image pick-up section 16, a control section 17, and the information Records Department 18 as a body A of a camera. As a record medium used for the information Records Department 18, a magneto-optic-recording medium or memory cards, such as magnetic-recording media, such as HDD and FD, and MO, MD, etc. are used. The configuration of the auxiliary information generating section B is completely the same as the above-mentioned case.

[0024] In this case, it is almost the same as the time of being in the configuration using the video camera shown in drawing 6, and treating a still picture, and the methods of record of an image and the auxiliary information at the time of photography only differ.

[0025] In this invention, a display 19 is formed in the auxiliary information generating section B in each configuration of drawing 1, drawing 6, and drawing 9, and it responds to input directions from the input control unit 12. Moreover, under control of the signal-processing section 11 The map of the predetermined area where the location measured by the screen of the display 19 by the CPS test section 7 exists is copied out, and it enables it to switch to the navigation mode which displays the current position with the mark of measured bearing in the location into the map. As a display mode of the navigation, the conventional things for which a function can be demonstrated variously, such as not only the display of the current position but a display of a transit locus, setting out of the induction path to the destination, etc., cannot be overemphasized.

[0026] In addition, it becomes possible to make it make a navigation display perform using the display for the monitors, without forming the display 19 of the sake for navigation, especially in using the PIDEO camera which has a display for monitors.

[0027]

[Effect] As mentioned above, according to the photography equipment by this invention, a means to measure a location and bearing is attached to a motion picture camera machine. Since he is trying to make a film, a video tape, etc. in a motion picture camera machine record automatically the auxiliary information about the location of the photography, and bearing on photography and coincidence It can

grasp now easily from which direction a photograph was taken in which location later. It has the advantage of the ability to make the photoed image manage, without needing the editing task of writing a photography location in a photograph or inserting the name of a place and the map of a photography location into a video image in any way.

[Translation done.]

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TECHNICAL FIELD

[Industrial Application] This invention relates to photography equipment with the camera which records an image.

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PRIOR ART

[Description of the Prior Art] If it is in a photograph camera conventionally, a clock is built in, and he exposes the alphabetic character of the date or time of day in piles on a film in the case of photography, and is trying to record the date and time of day of photography on the corner of a photograph as auxiliary information at the time of photography.

[0003] Moreover, if it is in a video camera conventionally, a clock is built in, the text of the date or time of day is recorded on the free area or the exclusive field of a video signal in the case of photography, and it enables it to display the date and time of day of photography as auxiliary information at the time of photography if needed into a playback image.

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EFFECT OF THE INVENTION

[Effect] As mentioned above, according to the photography equipment by this invention, a means to measure a location and bearing is attached to a motion picture camera machine. Since he is trying to make a film, a video tape, etc. in a motion picture camera machine record automatically the auxiliary information about the location of the photography, and bearing on photography and coincidence It can grasp now easily from which direction a photograph was taken in which location later. It has the advantage of the ability to make the photoed image manage, without needing the editing task of writing a photography location in a photograph or inserting the name of a place and the map of a photography location into a video image in any way.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] With photography equipments, such as the conventional photograph camera and a video camera, remain for recording the date and time of day as auxiliary information at the time of photography, and the information about a camera station is not acquired at all, but becomes later, and the trouble which it is going to solve is that the photography location in a travel place etc. is not clear anymore.

[0005] Therefore, in the former, in order to record the photography location, writing a photography location in a photograph afterwards, inserting the name of a place and the map of a photography location into a video image, or carrying out sound recording which it shows to a photography location etc. needs an activity separately, and the activity is complicated.

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MEANS

[Means for Solving the Problem] This invention is in the photography equipment which records an image, and he is trying to offer a means to measure the camera station on a map, and a means to record the auxiliary information about the measured camera station to enable it to record the information about a camera station automatically on the occasion of photography.

[0007] Moreover, he is trying for this invention to offer a means to measure bearing of photography, and a means to record the measured bearing of photography to enable it to also record bearing of photography as auxiliary information at the time of photography.

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EXAMPLE

[Example]

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EXAMPLE

[Example] The body A of a camera which makes a film 3 expose the image which drawing 1 shows the example of a configuration when applying this invention to the photograph camera, and was taken in through the shutter 1 and the lens 2 It consists of the auxiliary information generating section B which generates the auxiliary information about the location and bearing of photography. The image which displays the location and bearing of photography in the projection section 4 prepared in the interior of the body A of a camera based on the auxiliary information generated from the auxiliary information generating section B is copied out on the screen. He is trying to make the image which projected on the film 3 and was photoed through the lens 5 and the half mirror 6 expose the image in piles.

[0009] The GPS test section 7 for measuring a camera station as the auxiliary information generating section B, The bearing test section 8 which consists of an earth magnetism sensor for measuring bearing of photography, The map information storage medium 9 which consists of a CD-ROM the map information by digital map data is remembered to be, a memory card, etc., The map information playback section 10 which reads the map information on a predetermined area from the storage 9 selectively, While reading the map information on a predetermined area that the camera station exists, according to the lat/long value of the camera station measured by the GPS test section 7 and giving a display 4 While giving the information on bearing of the photography measured by the information and bearing test section 8 of a lat/long value of a camera station which were measured, respectively The signal-processing section 11 which consists of a microcomputer which controls this whole equipment, The location of directions of record of the auxiliary information about the location and bearing of photography, and its record, and setting out of magnitude, It is constituted by the input control unit 12 which can give the change of the recording mode to the signal-processing sections 11, such as various operator guidance for nothing and selection assignment of a display contraction scale of a map, and navigation.

[0010] Thus, if it is in some which were constituted, as shown, for example in drawing 2 , as an image which displays the location and bearing of photography on a part of image photoed with the body A of a camera, a camera station is shown by the arrow head and the photograph with which the map of a predetermined area in which bearing of the photography at that time was shown by the magnetic-needle mark was recorded on the corner in piles comes to be acquired.

[0011] And about the magnitude and the location of a map which are recorded on a part of the photoed image, while a photography person checks except the finder of the body A of a camera before photography, it can be set as arbitration by making alter operation.

[0012] Moreover, instead of recording the map in which the camera station was shown by making a recording mode switch, as shown in drawing 3 , the name of a place of a camera station can be recorded.

[0013] In this case, the information on the name of a place according to a lat/long value is also made to memorize in addition to map information, the information on the name of a place according to the lat/long value of the camera station measured under control of the signal-processing section 11 is read, and it is made to make the map information storage medium 9 exposed in piles on the image which had

the alphabetic character image of the name of a place photoed.

[0014] In addition, the clock is made to build in the signal-processing section 11, the auxiliary information on the name of an era of photography, a date, a day of the week, and time of day is also given to the projection section 4, and the image with which a date, time of day, etc. were written in addition to the name of a place and bearing of photography can be made to record.

[0015] Moreover, if the name of a place is recorded on the corner which becomes the outside of the area where the image of a film 3 is recorded instead of recording a map and the name of a place on the photoed image in piles as shown in drawing 4, it will become possible to enable it to burn the name of a place on the corner of sensitized paper at the time of a print.

[0016] Moreover, as shown in drawing 5, a special film with the truck by the MAG or the optical writing of dedication for recording the auxiliary information at the time of photography on the margin part of a film 3 is used. According to auxiliary information, a recording head (not shown) is driven suitably, and the location of photography and the information on bearing are recorded on the truck by the bar code BC etc. as service at the time of a print. It is also possible to enable it to burn suitably the map with which the name of a place and a camera station were shown in the corner of the rear face of sensitized paper or a front face, and bearing of photography.

[0017] Drawing 6 shows the example of a configuration when applying this invention to the video camera. It consists of the image pick-up section 13, a control section 14, and the VTR section 15 as a body A of a camera. The configuration of the auxiliary information generating section B is completely the same as the above-mentioned case.

[0018] Here, as a body A of a camera, as shown in drawing 7, in addition to primary-track T1 which records an image and voice. It puts under control of a control section 14 using a video camera (for example, 8mm video camera) with the PCM truck T2 which can record auxiliary information in digital one. He is trying to record the auxiliary information about the location and bearing of photography which were obtained always or periodically on the occasion of photography on the PCM truck T2.

[0019] In using a video camera without the truck for auxiliary information record, it records auxiliary information on the bottom of control of a control section 14 at the free area of the scanning line.

[0020] Thus, if the **** information at the time of the photography is recorded on the free area of the PCM truck T2 or the scanning line on the occasion of photography, the auxiliary information can be recorded, without spoiling the information on the image currently recorded on the primary track T1, or voice in any way. And when reproducing later, the image photoed in a required location and required bearing based on the auxiliary information can be called selectively.

[0021] Moreover, by giving the command of super imposing to a control section 14 from the signal-processing section 11 according to the input directions from the input control unit 12. Based on the map information on a specific area that the auxiliary information and the camera station at the time of the photography given to the bottom of control of a control section 14 from the signal-processing section 11 exist, as shown in drawing 2 or drawing 8. Use the photoed image as a parent screen and the map of a predetermined area in which the location and bearing of the photography were shown is used as a child screen. Or as it becomes the screen of the relation of the reverse, it becomes possible to make it also make the so-called super imposing (picture in picture) which inserts a child screen into a parent screen perform.

[0022] In addition, the degree of freedom of photography and edit later can be enlarged now by enabling it to choose whether it records with this super imposing screen, or only the photoed image is recorded in this case.

[0023] Drawing 9 shows the example of a configuration when applying this invention to the electronic "still" camera. It consists of the image pick-up section 16, a control section 17, and the information Records Department 18 as a body A of a camera. As a record medium used for the information Records Department 18, a magneto-optic-recording medium or memory cards, such as magnetic-recording media, such as HDD and FD, and MO, MD, etc. are used. The configuration of the auxiliary information generating section B is completely the same as the above-mentioned case.

[0024] In this case, it is almost the same as the time of being in the configuration using the video camera

shown in drawing 6 , and treating a still picture, and the methods of record of an image and the auxiliary information at the time of photography only differ.

[0025] In this invention, a display 19 is formed in the auxiliary information generating section B in each configuration of drawing 1 , drawing 6 , and drawing 9 , and it responds to input directions from the input control unit 12. Moreover, under control of the signal-processing section 11 The map of the predetermined area where the location measured by the screen of the display 19 by the CPS test section 7 exists is copied out, and it enables it to switch to the navigation mode which displays the current position with the mark of measured bearing in the location into the map. As a display mode of the navigation, the conventional things for which a function can be demonstrated variously, such as not only the display of the current position but a display of a transit locus, setting out of the induction path to the destination, etc., cannot be overemphasized.

[0026] In addition, it becomes possible to make it make a navigation display perform using the display for the monitors, without forming the display 19 of the sake for navigation, especially in using the PIDE0 camera which has a display for monitors.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the block block diagram showing one example of the photography equipment by this invention.

[Drawing 2] It is drawing showing an example of the photography image with which the auxiliary information at the time of photography was recorded.

[Drawing 3] It is drawing showing other examples of the photography image with which the auxiliary information at the time of photography was recorded.

[Drawing 4] It is drawing showing the condition that the name of a place of a photography location was recorded on the corner of a film.

[Drawing 5] It is drawing showing the condition that the auxiliary information at the time of photography was recorded by the bar code on the truck of the dedication prepared in the margin part of a film.

[Drawing 6] It is the block block diagram showing other examples of the photography equipment by this invention.

[Drawing 7] It is drawing showing some video tapes in which the recording track for an image and voice and the recording track of the auxiliary information at the time of photography were established.

[Drawing 8] It is drawing showing the example of further others of the photography image with which the auxiliary information at the time of photography was recorded.

[Drawing 9] It is the block block diagram showing the example of further others of the photography equipment by this invention.

[Description of Notations]

1 Shutter

2 Lens

3 Film

4 Projection Section

5 Lens

6 Half Mirror

7 GPS Test Section

8 Bearing Test Section

9 Map Information Storage Medium

10 Map Information Playback Section

11 Signal-Processing Section

12 Input Control Unit

13 Image Pick-up Section

14 Control Section

15 The VTR Section

16 Image Pick-up Section

17 Control Section

18 Information Records Department
19 Display

[Translation done.]

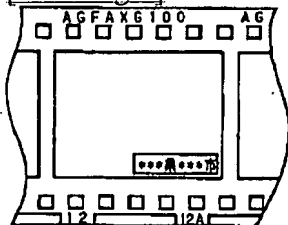
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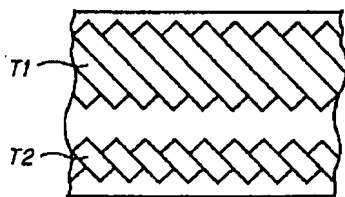
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DRAWINGS

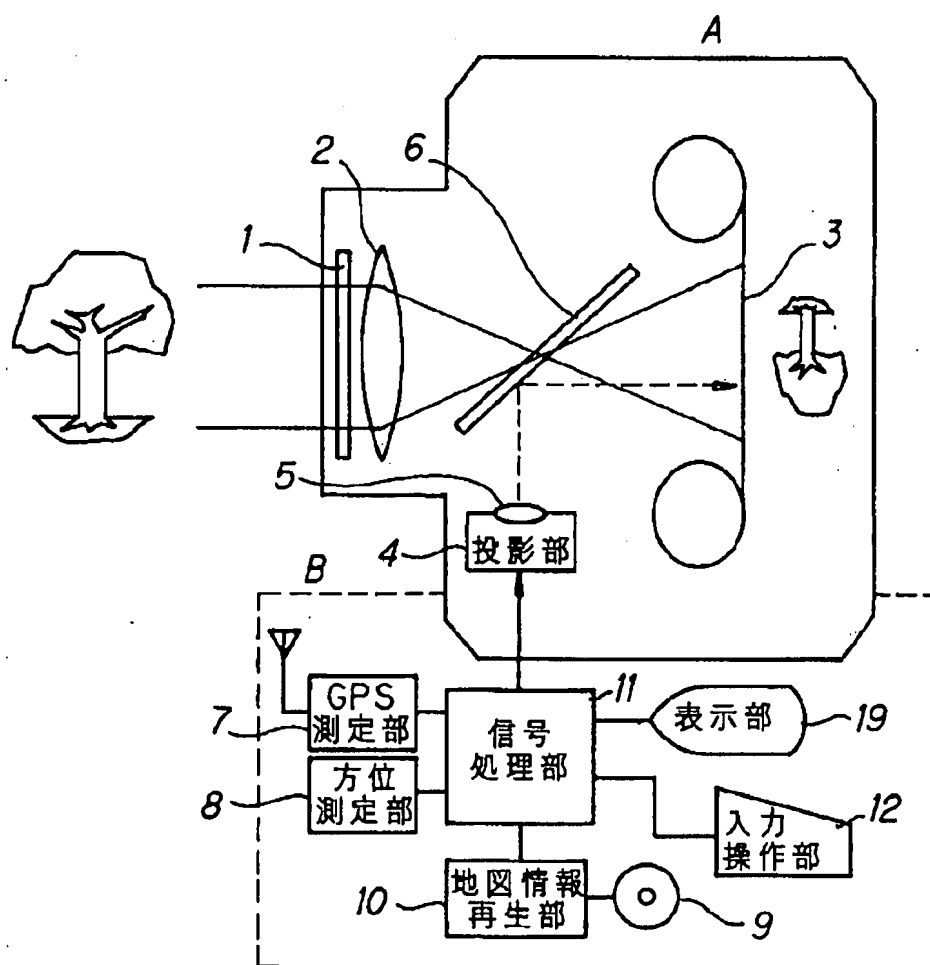
[Drawing 4]



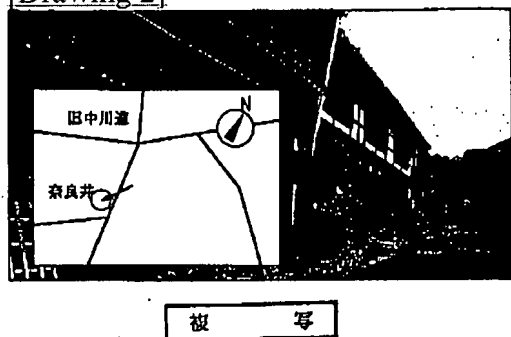
[Drawing 7]



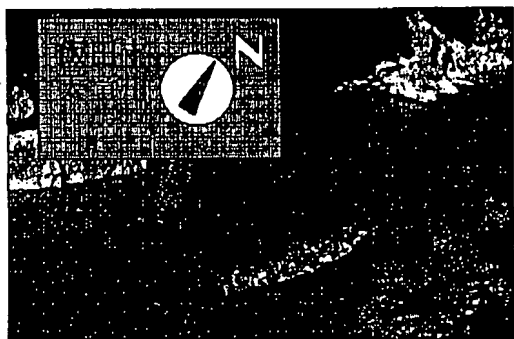
[Drawing 1]



[Drawing 2]

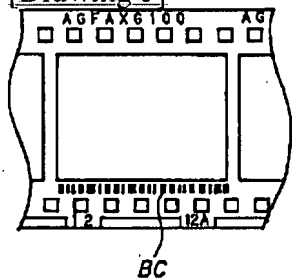


[Drawing 3]

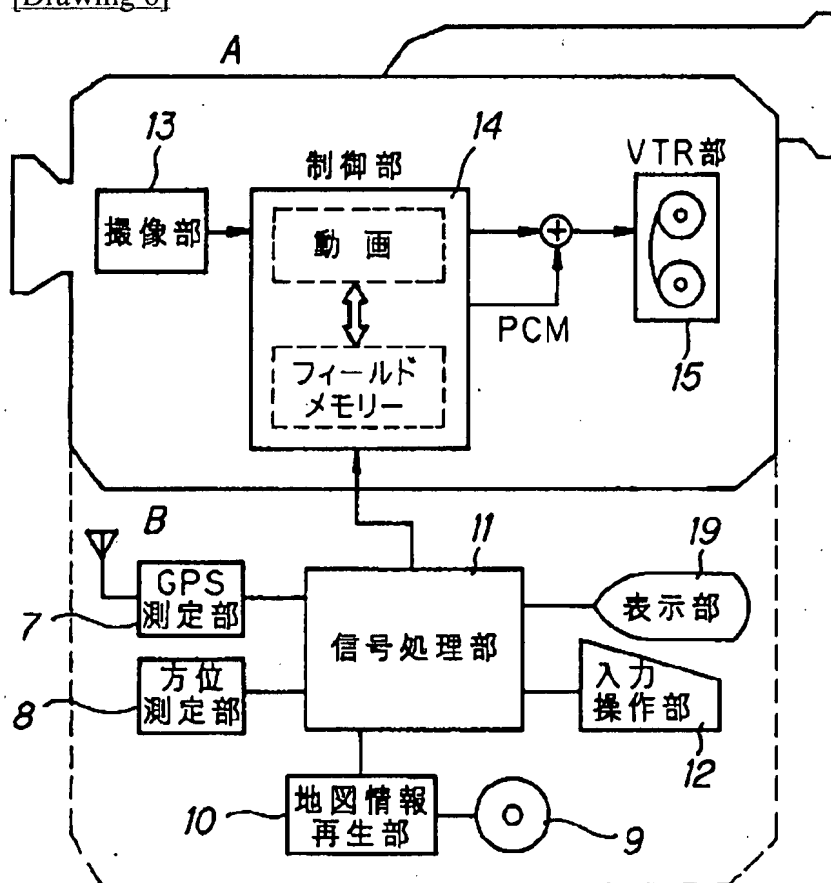


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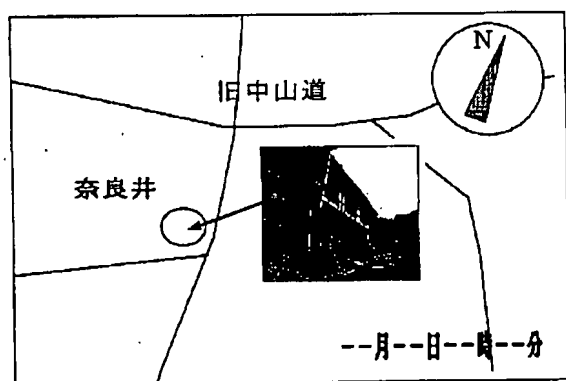
[Drawing 5]



[Drawing 6]

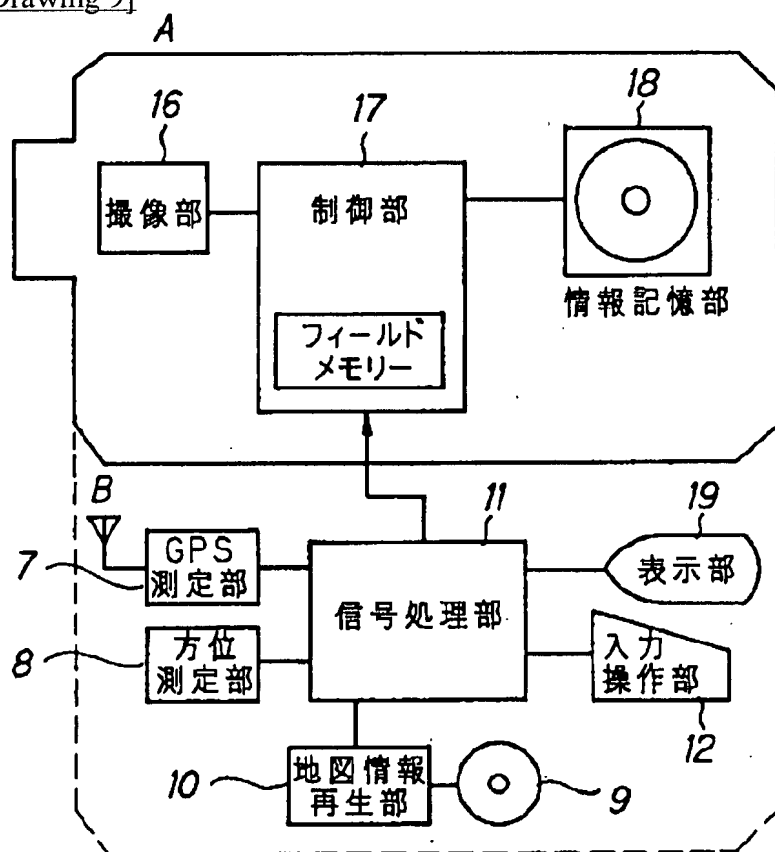


[Drawing 8]



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[Drawing 9]



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